

Project

BH Replace Sub AA and JCC-2 Transformers - Phase 1 (2011 BH Replace Sub AA and two 69/13.8 kV Transformers)
GP O&O Central Control Rack Room DCS Upgrade
BH Replace Combustion System hardware on C-CG-2 Gas Turbine
F4 DCS CP, AW and COMM Module Replacement
BH Natural Gas Line Replacement
GP 69kV Transmission Line Reliability Plan Project
BH Replace Combustion System Hardware on C-CG-1 Gas Turbine
BH Replace Combustion System hardware on C-CG-2 Gas Turbine
H-K2-001 & 002 Boiler Replacements
BH SVR Excitation Control Replacement for CoGen 1 & 2
BH Cogen 1 Upgrade

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| FMG Replace Substation JWW-1 at JWWTP |
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| 'BH Replace Combustion System Hardware on C-CG-1 Gas Turbine |
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| BH Replacement Clarifier Charge Pump |
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| GP 69kV TCC-3/3A & 4/4A Diff Protection |
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| BH Replace Sub AA and JCC-2 Transformers - Phase 1 (2011 BH Replace Sub AA and two 69/13.8 kV Transformers) |
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| BH Cogen 2 Refurbishment |
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| BH H-K-11 Rebuild |
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| Sub K Battery String Replacement |
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| Cogen 1 UPS Battery Replacement |
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| F5 Rebuild H-K-003 |
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| Util Electrical Power to rental RO system |
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| Sub J Battery Back Up System Replacement |
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| BH H-K2-004 BMS & SIS Upgrade |
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Year Completed

Cost \$K

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|------|----|--------|
| 2014 | \$ | 104 |
| 2014 | \$ | 341 |
| 2014 | \$ | 68 |
| 2014 | \$ | 243 |
| 2014 | \$ | 267 |
| 2014 | \$ | 1,090 |
| 2014 | \$ | 987 |
| 2015 | \$ | 2,800 |
| 2016 | \$ | 11,000 |
| 2016 | \$ | 600 |
| 2016 | \$ | 2,300 |
| 2017 | \$ | 4,900 |
| 2017 | \$ | 1,900 |
| 2017 | \$ | 1,900 |
| 2017 | \$ | 800 |
| 2018 | \$ | 19,000 |
| 2018 | \$ | 2,700 |
| 2018 | \$ | 5,400 |
| 2019 | \$ | 20 |
| 2019 | \$ | 20 |
| 2020 | \$ | 13,000 |
| 2020 | \$ | 550 |
| 2020 | \$ | 20 |
| 2022 | \$ | 2,600 |

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| Total Spend by Year | \$ | 2,015 |
| | \$ | 2,800 |
| | \$ | 2.8 |

| EO Emission | |
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| Year Completed | Benefit Classification |
| 2014 | Electrical Reliability |
| | Steam Supply Reliability |
| | Process Improvements |
| 2015 | Steam Supply Reliability |

Benefit Classification

Electrical Supply Reliability
DCS Upgrade
Steam Supply Reliability

Steam Supply Reliability
Electrical Supply Reliability
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Steam Supply Reliability
Steam Supply Reliability
Electrical Supply Reliability
Future Consideration

| | 2016 | 2017 | 2018 | 2019 | 2020 |
|----|--------|----------|-----------|--------|-----------|
| \$ | 13,900 | \$ 9,500 | \$ 27,100 | \$ 40 | \$ 13,570 |
| \$ | 13.9 | \$ 9.5 | \$ 27.1 | \$ 0.0 | \$ 13.6 |

| Reduction Efforts | |
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| Projects/Improvements | |
| Substation and transformer improvements | |
| High voltage Transmission line improvements | |
| Combustion system hardware replacement | |
| Boiler Natural Gas line replacement | |
| DCS Upgrades | |
| AW and COMM module replacement | |
| Gas turbine upgrades | |

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| 2016 | Steam Supply Reliability |
| | Process Improvements |
| 2017 | Electrical Reliability |
| | Steam Supply Reliability |
| 2018 | Electrical Reliability |
| | Steam Supply Reliability |
| 2019 | Electrical Reliability |
| | Steam Supply Reliability |
| | Process Improvements |
| 2020 | Electrical Reliability |
| | Steam Supply Reliability |

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| Replacement of two boilers |
| Replacement of controls on Cogen 1 & 2 |
| Upgrades to Cogen 1 |
| F8 process control improvements post start up |
| Replacement of a substation |
| Improved electrical supply protection |
| Replacement of combustion hardware on gas turbine |
| Replacement of clarifier charge pump |
| Replaced one substation and two transformers |
| Refurbished Cogen 2, rebuild H-K-11 |
| Replaced substation battery string |
| Replaced Cogen 1 UPS |
| Made several control system changes to reduce the impact to other units when an F or G unit process has an upset or trip |
| Connected rental RO system to permanent power supply |
| Replacement of substation battery backup system |
| Rebuilt one boiler |